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AMENDMENTS

Please amend the claims as provided below. A clean copy of the amended claims follows and a marked-up version showing each of the changes to the claims is attached at the end of this document.

In the Claims:

Please amend the claims to read as follows:

13. (Once Amended) A method of carrying out Czochralski crystal growth comprising:

- (a) providing a crucible with a solid feed material therein, the solid feed material comprising each of the constituents of the crystal to be grown;
- (b) heating an upper portion of the crucible with an upper heater to a temperature sufficient to melt the feed material in an upper portion of the crucible and separately heating a lower portion of the crucible with a lower heater to another temperature which is below the melt temperature of the feed material so that the feed material in the lower portion of the crucible remains solid;
- (c) growing a crystal from the melt and drawing the growing crystal out of the melt; and
- (d) advancing the crucible with respect to the heaters as the crystal is drawn from the melt to heat additional portions of solid feed material with the upper heater to melt the additional solid material to replace the crystal drawn from the melt.

21. (Once Amended) The method of Claim 13 wherein the step of providing a crucible with a solid feed material therein includes filling the crucible with a mixture of feed material comprising each of the constituents of the crystal to be grown, heating the mixture to melt it in the crucible and mixing the melted mixture, then freezing the melted mixture to form a

solid feed material in the crucible, and then heating an upper portion of the feed material in the crucible with the upper heater to a temperature above the melting temperature of the material.

26. (Once Amended) The method of Claim 13 wherein before drawing the crystal from the melt, the melt is leveled by the addition of a dopant or a constituent of an alloy to adjust the melt concentration to a level of C_o/k , where C_o is the concentration of the dopant or the constituent of the alloy in the crystal and k is an experimentally determined constant.

29. (Once Amended) A method of carrying out liquid encapsulated Czochralski crystal growth comprising:

- (a) providing a crucible with a solid feed material therein, the solid feed material comprising each of the constituents of the crystal to be grown;
- (b) heating an upper portion of the crucible with an upper heater to a temperature sufficient to melt the feed material in an upper portion of the crucible and separately heating a lower portion of the crucible with a lower heater to another temperature which is below the melt temperature of the feed material so that the feed material in the lower portion of the crucible remains solid;
- (c) growing a crystal from the melt and drawing the growing crystal out of the melt while covering the melt with a liquid encapsulant material; and
- (d) advancing the crucible with respect to the heaters as the crystal is drawn from the melt to heat additional portions of solid feed material with the upper heater to melt the additional solid material to replace the crystal drawn from the melt.

36. (Once Amended) The method of Claim 29 wherein before drawing the crystal from the melt, the melt is leveled by the addition of a dopant or a constituent of an alloy to adjust the melt concentration to a level of C_o/k , where C_o is the concentration of the dopant or the constituent of the alloy in the crystal and k is an experimentally determined constant.

37. (Once Amended) The method of Claim 29 wherein the step of providing a crucible with a solid feed material therein includes filling the crucible with a mixture of feed material comprising each of the constituents of the crystal to be grown and the encapsulant, heating the mixture to melt it in the crucible and mixing the melted mixture, then freezing the